

Appendix A

A Historical Perspective of Air Permitting and Requirements of the Clean Air Act Amendments of 1990

The role of Title V in the Clean Air Act Amendments of 1990 is dependent on regulations and permit programs instituted with earlier acts and their regulations. To comprehend the relationships of the permitting programs, it is helpful to understand the history and events leading up to the 1990 amendments. The remainder of this lesson provides a concise history and overview of air pollution regulations.

Note: In the following descriptions, "titles and sections" will be referenced by number. The contents of a given title number in one act or amendment does not necessarily refer to, or correspond with, the contents of the same title number in another act or amendment. For example, 40 CFR 55 is the notation used to identify the Code of Federal Regulations, Part 40, Section 55, and 42 USC 7661 denotes Title 42 of the U. S. Code, Section 7661.

Air Pollution Regulation Prior to 1970

The regulation and control of air pollution as it is generally recognized today had its start in 1970 with the Clean Air Act of 1970. However, Public Law 159, which identified that urban growth and industrialization were having an impact on air quality, pre-dated the Clean Air Act of 1970 by nearly 15 years. Public Law 159 authorized the funding of research by the U.S. Public Health Service to evaluate the nature and extent of air pollution across the nation. Certain highly industrialized areas such as the areas around Pittsburgh and Chicago and urbanized areas of New York and Los Angeles had developed very apparent problems with air pollution under certain atmospheric conditions. This represented the first formal Federal program to identify and quantify the nation's air pollution problems. Local health codes had provided the formation of local air pollution control agencies such as the one formed in the Los Angeles area as early as 1945. However, the first formal state agency for the control of air pollution was approved by the California legislature in 1947.

The Clean Air Act of 1963 authorized the formation of a grant program to assist state and local programs that were being formed to provide their own air pollution control programs. It was also at this time that controls for automobiles were required to reduce emissions from engines. The requirements for motor vehicles were simple (primarily positive crankcase ventilation, or PCV valves that allowed "blow-by" from worn engines to be combusted by the engine and reduce emissions. The Air Quality Act of 1967 added and strengthened the Federal statutory authority to

take action to reduce interstate air pollution problems. However, there were no Federal regulations for what we recognize as "permitting."

The year 1970 was an important year for environmental regulations. The first major environmental act of 1970 was the National Environmental Policy Act (NEPA) of 1970. This Act required the completion of Environmental Impact Statements (EIS) for all major Federal projects. Although, many Federal projects were affected immediately by the requirements of NEPA, the air pollution issues associated with these projects and considered in the EIS were minimal. NEPA also called for the formation of the Council on Environmental Quality (CEQ) that reported to the President of the United States. The CEQ was responsible for reporting and providing recommendations to the President on all environmental media, including air. The major turning point, that defined air pollution control and resulted in the initial permitting programs, occurred as a result of the passage and signing of the Clean Air Act of 1970.

Clean Air Act of 1970

The statutory requirements of the Clean Air Act of 1970 formed the basis of many of the regulatory programs and requirements present today. Consequently, many people consider the Clean Air Act of 1970 as the beginning of modern air pollution control regulations. We will designate the Clean Air Act of 1970 by the initials CAA. The Agency responsible for implementation of the CAA is the U.S. Environmental Protection Agency (EPA), formed as a result of an Executive Order in December 1970. Many personnel serving in the U.S. Public Health Service, Air Pollution Control Division were reorganized into the EPA under the various air programs and laboratories being established for the new agency.

The CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS, pronounced as "knacks") for six criteria air pollutants. These NAAQS would be applied on a consistent national basis and would be used to determine "attainment" or "non-attainment." The six pollutants identified as criteria pollutants were:

1. Total suspended particulate (TSP)
2. Sulfur dioxide
3. Carbon monoxide
4. Hydrocarbons
5. Nitrogen dioxide
6. Photochemical oxidants.

Furthermore, the CAA required the establishment of primary and secondary NAAQS for certain pollutants. The primary NAAQS must provide an adequate margin of safety to protect the *public health* (human). Secondary NAAQS must also protect the *public welfare* (plants, animals, buildings). Therefore, the secondary NAAQS represented a goal that went beyond the protection of public health and was more stringent than the primary NAAQS.

The NAAQS were reviewed periodically and some changes were made to the original six criteria pollutants. The photochemical oxidant NAAQS was changed in 1979 to ozone (O₃) as the criteria pollutant and the NAAQS for Volatile Organic Compounds (VOC) was deleted in 1983. EPA

also established a NAAQS for lead in 1976 and revised the TSP NAAQS to consider PM₁₀ (particulate matter with a particle size of less than 10 micrometers) as the standard, and subsequently PM_{2.5} (particulates of less than 2.5 micrometers).

The CAA delegated responsibility for meeting the NAAQS to the states through State Implementation Plans (SIPs). The SIPs allowed each state and/or local agency to determine the regulatory approach it would use to meet and/or maintain the NAAQS for each of the criteria pollutants. EPA promulgated regulations that specified minimum requirements for the content of the SIPs.

During this period a number of agencies included a permit program in the SIP as part of the approach used to achieve or maintain attainment of the NAAQS. The permit system, however, was not a requirement of the SIP approval process. Permitting processes, used by the state and local agencies, ranged from relatively complex (where emission limits and operating requirements were specified with great detail) to relatively simple equipment registration and emission inventory procedures. However, there was no consistent permitting approach used, nor were there any specific Federal requirements for operating permit content until the Clean Air Act Amendments of 1990.

Where the permit approach was not used, source registration was common. Many state and local agencies were attempting to determine what processes were operating, what controls were in place, and what was needed to comply with the NAAQS and the SIP. In many cases, the promulgation of emission limits for criteria pollutants for existing sources (including opacity limits) resulted in the installation of add-on control equipment. Thus, under the source registration system, industry was required to register the pollutants being emitted. Source registration was often extended to include control equipment and predicted emission rates for regulatory modeling purposes. Some agencies included a permit requirement to construct and operate control equipment.

Based on the differentiation between a permit system and a registration system, a large number of the state and local programs adopted a permitting system as part of their SIP. The remainder generally used a registration system for existing sources. Some agencies adopted permitting systems later for new and modified sources to meet new requirements under the Clean Air Act Amendments of 1977.

Two major programs, and subsequent regulatory development, began with the passage of the 1970 CAA. The programs were:

- New Source Performance Standards (NSPS)

- National Emission Standards for Hazardous Air Pollutants (NESHAP)

New Source Performance Standards (NSPS)

Section 111 of the CAA established the New Source Performance Standards (NSPS) which apply to new or modified sources. The NSPS are developed on an industry specific, or process specific, basis and may regulate criteria or other air pollutants. Under Section 111 of the Act, the standards include associated cost factors. It is important to note that these pollution control requirements are in the form of emission limits rather than a control technology. Although control techniques and technology are often highlighted during the establishment of emission standards, the NSPS values are generally set such that new sources,

subject to the NSPS, may achieve the allowable emission rate by whatever combination of controls provide economical performance. All NSPS regulations can be found in 40 CFR 60.

The development of the EPA Reference Test Methods also began with the NSPS program. These test methods are found in 40 CFR 60. Initially, eight test methods were proposed and promulgated with the NSPS regulations. There are currently more than 30 specific Reference Methods, with a number of acceptable alternative methods included under many of the methods.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Under Section 112 of the CAA, the National Emission Standards for Hazardous Air Pollutants (NESHAP or NESHAPs) were established. These standards were developed for pollutants and source categories that were determined to pose adverse risk to human health. Under the NESHAP program, additional noncriteria, regulated pollutants were identified. However, unlike the NSPS program that applied to new or modified sources, the NESHAP program applied to all (existing and new/modified) sources. Reference Test Methods were also developed under NESHAP to demonstrate compliance with the NESHAP emission limitations. NESHAP regulations are located in 40 CFR 61.

Neither the NSPS (40 CFR 60) nor the NESHAP (40 CFR 61) program required a permit to construct or operate under the CAA. Both programs, however, did require a source to comply with the program.

The CAA of 1970 also included two other very important sections. First, Section 114 of the CAA required all sources or facilities to provide process and emission information requested by the Agency. Proprietary or confidential business information could be excluded from the public under procedures included under the Freedom of Information Act (FOIA), but could not be withheld from the Agency. A substantial body of case law was developed as a result of this section of the Act in the early 1970s.

The second important section was Section 113 that provided for enforcement of the regulatory requirements. Section 113 not only included enforcement of Federally developed standards such as the NSPS or NESHAP but also applied to approved SIPs. If the SIP was approved by the EPA following the appropriate review process, then the SIP became Federally enforceable. State or delegated local agencies generally had the first responsibility to enforce regulations, but if an agency failed to enforce, EPA could enforce using the powers granted under Section 113. Section 113 also provided for the negotiation of consent decrees and assessment of civil penalties of up to \$25,000/ day of violation. Data falsification is a criminal offense with criminal penalties, but only civil penalties are assessed under this section of the Act.

Clean Air Act Amendments of 1977

The next major revision of the Clean Air Act occurred in 1977 with the passage of the Clean Air Act Amendments of 1977 (designated here as the 1977 CAAA). As a result of the 1977 CAAA several very important regulatory programs with implications for permit programs were developed. Title I, Part C of the 1977 CAAA was designated: Prevention of Significant

Deterioration (PSD), and Part D was designated Plan Requirements for Non-attainment Areas. The provisions of Part D are better known as the New Source Review (NSR) requirements. Both of these Parts of the 1977 CAAA had major effects on preconstruction review requirements. It is typical to refer to preconstruction review of facilities located in attainment areas as PSD review and to refer to preconstruction review of facilities locating in non-attainment areas as NSR.

In general, non-attainment areas required new or modified sources to meet more stringent emission limits to help attain NAAQS than did identical sources in attainment areas. EPA was concerned that new facilities might be constructed in attainment areas where the emission limits might be less restrictive and for which no NSPS had yet been developed. These new facilities could significantly deteriorate the air quality in an attainment area and threaten its attainment status. In 1974, EPA proposed its Prevention of Significant Deterioration (PSD) guidelines for new or modified sources that were locating in attainment areas. These guidelines also included procedures for new or modified sources locating in non-attainment areas. These guidelines became the basis of the PSD and non-attainment area New Source Review (NSR) requirements of the Clean Air Act Amendments of 1977.

Both programs have specific requirements for preconstruction review and result in a permit to construct and operate. Initially both programs required only a preconstruction review with approval to construct if the review indicated that the program requirements were met. The word "permit" was not included in the process. However, when the approval process also included specific limitations on emissions and/or operating conditions, these approvals, using the earlier definition of a permit, became construction/operating permits. The goals of the two programs, however, were quite different. The PSD program ensured that air quality was not degraded, and that the area continued to be in attainment with the NAAQS. The non-attainment NSR program, on the other hand, is focused on improving air quality to the point where an area can achieve attainment with the NAAQS. (The student should keep in mind that both of these NSR programs are preconstruction programs, compared with the operating permit program, which is the major focus of this manual.) The NSR programs are implemented before a source modifies or builds, and provides a preconstruction review to ensure that pollution control requirements are properly addressed in the design and intended operation. The operating permit program ensures that the requirements are properly *implemented*. As students will learn in this manual, and through their work, there are lots of areas of overlap between the new source review programs and the operating permit programs, but they each are intended for different, discrete purposes.

The 1977 CAAA established allowable incremental increases for particulate matter and sulfur dioxide in attainment areas and required the establishment of increments for other criteria pollutants as appropriate information became available. These increments represent the maximum degradation of ambient air quality allowed in an attainment area where a new or modified major source has ambient impacts.

The 1977 CAAA further designated classifications for attainment areas and different allowable incremental increases for criteria pollutants based on these designations.

Class I Attainment Area

Class I areas designate the most pristine areas and include all National Parks and wilderness areas. The allowable incremental increases or ambient air quality degradation for criteria pollutants is most restrictive for this classification of air quality.

Class II Attainment Area

By law, all areas that are not Class I are designated as Class II areas. Class II areas designate the most moderately industrialized areas and areas whose attainment status is undetermined. All attainment areas in the United States are currently classified as Class I or Class II.

The 1977 CAAA added a degree of complexity for those who required permits to construct and operate and for those responsible for permitting these sources and facilities. The regulations and policies associated with the PSD and NSR programs have evolved over time and have become more comprehensive and more complex. The PSD and NSR reviews produced what can be described as combined construction and operating permits. Until the Clean Air Act Amendments of 1990, the permits produced by these programs were some of the most complex and comprehensive permits created.

Clean Air Act Amendments of 1990

The Clean Air Act Amendments of 1990 (designated as the 1990 CAAA) represent some of the most sweeping changes in the environmental program. The thirteen year period between major amendments to the Federal statutes in some ways make the 1990 CAAA seem as an abrupt change in the requirements facing both industry and regulators. In many cases the 1990 CAAA will challenge the technical capabilities to meet the requirements. This section discusses the major Titles that will affect permit writers. Permit writers and those sources that will require operating permits may express greatest interest in Title V, which requires an operating permit system for each state. The requirements of Title V, however, are linked with other requirements of the Act, including many changes introduced in the 1990 CAAA; and permit writers need to be aware of these interrelationships. There are eleven titles under the 1990 CAAA. In the following discussion, the student needs to keep in mind that the titles referred to are the title numbers of the 1990 Clean Air Act Amendments, rather than the titles of the Clean Air Act itself. Thus, Title I of the 1990 Amendments deals with non-attainment and the NAAQS, Title III of the 1990 CAAA deals with hazardous air pollutants. Title III of the 1990 CAAA actually modifies Title I of the Act (e.g. sections 111 and 112).

Title I - 1990 CAAA - Attainment and Maintenance of National Ambient Air Quality Standards

Title I of the 1990 CAAA represents a significant focusing of effort to bring non-attainment areas into attainment. The focus of Title I is very clearly on the various remaining ozone non-attainment areas and areas that have recently changed status from attainment to non-attainment designation. The non-attainment areas for carbon monoxide are also a major emphasis in Title I but the requirements are less rigorous than for ozone. Non-attainment areas for PM₁₀ also have some additional requirements and there are relatively minor requirements or changes associated with the remaining criteria pollutants (sulfur dioxide, nitrogen dioxide and lead).

One of the most notable changes in the statute is the classification of severity of non-attainment. The ozone non-attainment areas have been divided into five separate severity

classifications based on the degree of non-attainment of the NAAQS value (sometimes called the design value).

Areas designated as non-attainment for carbon monoxide are also classified according to severity into two classifications: moderate and serious. The effect of the CO non-attainment provisions is anticipated to require less effort for stationary sources to meet than those for ozone non-attainment areas.

The 1990 CAAA addresses the transition begun by the EPA for particulate matter. With the statutory conversion from TSP to PM₁₀ the regulations will be changed to reflect only PM₁₀. PM₁₀ non-attainment areas are divided into two classifications: moderate and serious.

Title II -1990 CAAA - Mobile Sources

This title imposes a variety of control measures designed to reduce VOC, NO_x and CO emissions from mobile sources. Title II of the 1990 CAAA actually modifies Title II of the Act.

Title III - 1990 CAAA - Hazardous Air Pollutants

Title III represents a substantial addition to the regulatory requirements to be addressed by all stationary sources (Note: Title III of the 1990 CAAA is integrated into sections 111 and 112 of the Act). The student needs to remember to distinguish Title III of the 1990 CAAA from Title III of the Clean Air Act, entitled “General”, which deals with numerous administrative and general issues, such as the definition of “major source” and “air pollutant”.

The 1990 CAAA require the development of standards to limit and control the emissions of 189 hazardous air pollutant compounds from all regulated major sources and source categories. These compounds and their associated Chemical Abstract Service (CAS) numbers are found in Section 112(b) of the CAAA.

Title III requires the development of emission limits for selected source categories and pollutants based on the Maximum Achievable Control Technology (MACT). The statutes outlined by the 1990 CAAA require the MACT standards to be based upon emission limits and controls achieved by the top 12 percent of all sources regulated in each source category, provided there are at least 30 facilities in the category. If fewer than 30 sources exist, then the standard shall be based upon the emission levels of the best 5 facilities.

The MACT will apply to sources or facilities, in a regulated source category, that emit, or have the potential to emit, 10 or more tons per year of any of the 189 listed compounds or 25 or more tons per year of any combination of these hazardous air pollutants. These sources are considered major and require an operating permit under Title V. EPA or the agency may establish lower thresholds for potential to emit for certain source categories as the MACT standards are proposed and promulgated. But it may not propose less restrictive major source definitions than those contained in the 1990 CAAA.

An extension exists, for sources that enter into the Early Reduction Program (ERP) before the regulation proposal date becomes effective, that allows up to six years to comply with the emission standards after promulgation. Sources desiring to participate in ERP must submit a permit application.

EPA identified approximately 750 source categories as candidates for Title III MACT standards. This list was reviewed and reduced to 174 source categories to undergo initial standards development. The list was published in the December 3, 1993 Federal Register at 58 FR 63941 - 63954. However, if a facility is not included in one of the regulated source categories under Title III, but emits one or more of the Title III hazardous air pollutants, it may still be required to obtain an operating permit. Any pollutant, included under one of the source categories for which MACT standards are promulgated, becomes a "regulated" pollutant. A source may be determined to be major if it emits or has the potential to emit 10 tons or more per year of any of the regulated hazardous air pollutants or 25 tons or more per year of any combination of the regulated hazardous air pollutants. Thus, many sources that have been deemed minor in the past (because they emitted less than 100 tons per year of any of the regulated pollutants, mostly the criteria pollutants) may now be subject to regulation because the pollutants they emit are included under Title III.

One of the interesting aspects of Title III is that it is technology based. Work practices, equipment design, and control equipment will dictate the performance and emissions to the atmosphere.

Title IV - 1990 CAAA - Acid Deposition Control

Title IV is also known as the acid rain provisions of the 1990 CAAA. This Title requires the reduction and control of SO₂ and NO_x from coal-fired power plants from 1980 levels. These coal-fired power plants are designated according to "phase" to meet regulatory requirements for reduction of acid rain constituents. All plants subject to Title IV requirements will be required to obtain Title V operating permits under the definition of major source. This CAAA title is now Title IV of the Act.

Title V - 1990 CAAA - Operating Permits

The Operating Permit system created under Title V is the regulatory centerpiece of the 1990 CAAA. All provisions of the 1990 CAAA and earlier Clean Air Act requirements for stationary sources will eventually be incorporated under Title V into an enforceable operating permit. EPA promulgated the regulations requiring the development of state operating permit programs under 40 CFR 70 in July 1992. These regulations define specific minimum program requirements for the operating permit program.

Title V broadly outlined the requirements of the operating permit program that the state programs must implement. The regulations are promulgated under 40 CFR 70. Specifically the regulations outline minimum program requirements and can be divided into three sections: administrative requirements, permit application requirements, and operating permit content requirements. This is now Title V of the Act.

Title VI - 1990 CAAA - Stratospheric Ozone Protection

Stratospheric ozone provides protection from the harmful effects of ultraviolet rays from the sun. Title VI of the 1990 CAAA provides the statutory authority for EPA to promulgate regulations requiring the phase-out of certain chlorinated and brominated compounds that

have been determined to have the potential to react with stratospheric ozone, acting to deplete this substance from the atmosphere.

Although no explicit definition of a "major" source of chlorofluorocarbons (CFCs) has been provided (except for the standard 100 ton per year value), sources that use CFCs may find that operating permits will contain requirements for capture, recycle, and phase-out of CFCs. Specific regulations have been promulgated concerning CFC recovery for automobile air conditioning and other air conditioning uses. Stratospheric ozone issues will not be discussed in this course. Title VI of the 1990 Amendments is Title VI of the Act.

Title VII - 1990 CAAA - Enforcement

Title VII of the 1990 CAAA represents a substantial change in enforcement regulations and policies under the Clean Air Act. These changes are incorporated in various sections of Title I of the Act, including sections 113 and 114. Section 120 penalties were added to the Act in the 1977 Amendments and regulations were subsequently proposed and promulgated to offset any cost advantage that may be realized by an organization if it failed to comply with the regulatory requirements. In practice, the interpretation and implementation of these penalties were cumbersome and appropriate only for the largest and most substantial violators. In addition, these penalties were classified as civil penalties. Title VII substantially broadens the penalties that may be imposed to include both civil and criminal penalties. In addition, administrative penalties, up to \$25,000 per day can now be assessed, if the total assessed value is less than \$200,000.

The act has also been expanded to allow EPA to propose and promulgate regulations pertaining to awards for information concerning noncompliance. These awards (up to \$10,000) are also known colloquially as "bounty hunter" awards. EPA has proposed regulations to implement this program. EPA has also proposed a field-citation program as authorized in the 1990 CAAA. These field citations can be issued for minor violations for up to \$5,000 per day. The intent of these citations is to address minor, easily corrected violations with a simplified procedure that is less formal than administrative, civil, or other criminal actions that may be taken under the Act.

The reach of enforcement for violations has also been greatly extended. Now, corporate officers can be prosecuted for both civil and criminal penalties and penalties can be doubled for "knowing" and/or second violations. Thus, the interpretation of the congressional intent is that continuous compliance is considered to be a required goal for sources to achieve.

Finally, the provisions of Title VII of the 1990 CAAA in conjunction with other provisions of the 1990 CAAA, give increased "standing" to citizens seeking legal remedies to noncompliance situations. In the past, citizens were often forced to take legal action on the basis of "nuisance" regulations. The recent changes to the Act allow citizens to enter suits, particularly where EPA or the state or local agency fail to take action.

Titles VIII through XI have no real impact on the permitting aspects of the ACT. They are listed below to provide completeness only.

Title VIII - 1990 Clean Air Act - Miscellaneous Provisions

Title IX - 1990 CAAA - Clean Air Research

Title X - 1990 CAAA - Disadvantaged Business Concerns

Title XI - 1990 CAAA - Employment Transition Assistance

Table E-1 in Appendix E lists the titles of the Clean Air Act as amended in 1990.

Summary

This appendix has examined the history of Clean Air Act legislation from prior to the Clean Air Act of 1970 through the 1990 Clean Air Act Amendments. The 1990 CAAA represent some of the most comprehensive changes that have occurred throughout the legislative history of the CAA. This lesson also introduced several concepts and acronyms that are used throughout the implementation of key regulations and programs.